

Making a Histogram:

- To find your bin width, look at numbers you have.

From Example in notes:

Highest number = 29

Lowest number = 16

$$29 - 16 = 13 + 1 = 14$$

include
16

↑
Range of data

- To get number of bins, divide range by bin width.

$$\frac{\text{range of data}}{\text{bin width}} = \frac{14}{2} = 7$$

- X-axis does NOT have to start with \emptyset . (assuming bins are on X-axis)
- Y-axis is your counting axis, and it will start at \emptyset .
- Y-axis does NOT have to go one line = one count.
- LABEL YOUR AXES!

On example: X-axis: scores
Y-axis: counts
(frequency)

Shapes of Distributions:

(histograms, stem and leaf, dot plots)

- Modes: peaks in a distribution
 - Question we ask when looking at distribution:

Does the distribution have any peaks?

- One peak → unimodal
- Two peaks → bimodal
- Three or more peaks → multimodal
- No peaks → uniform

- Symmetry:

- Another question:

- Is our distribution symmetric?

- If not symmetric, there may be tails.

- Tails are the thinner ends of the distribution.

- Skewed left \rightarrow tail is on the left

- Skewed right \rightarrow tail is on the right

- Outliers:
 - Piece of data away from the rest of the data.
 - Can be the most informative part of data!
 - Could be an error
 - Don't ever ignore!
- Spread of data
 - Range of data
distance between highest and lowest points
 - Center → use median
(median is midpoint number)

- Median example:

~~11~~, ~~3~~, ~~25~~, ~~2~~, ~~-17~~, ~~13~~, ~~45~~

-17, 2, 3, 13, 14, 25, 45



median

Another ex:

~~7~~, ~~22~~, ~~18~~, ~~42~~, ~~51~~, ~~4~~

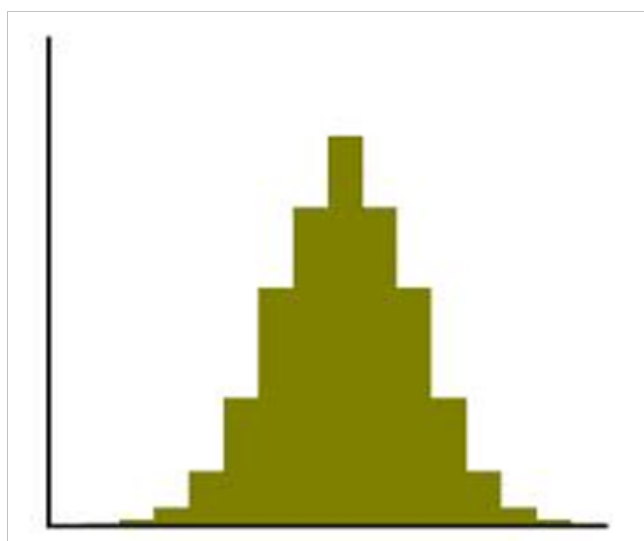
4, 7, 18, 22, 42, 51

take mean
of these two
numbers

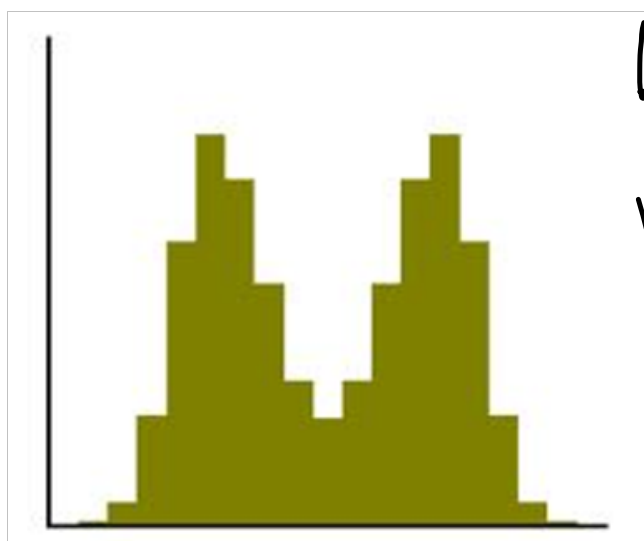
$$\frac{18+22}{2} = 20$$

↑
median

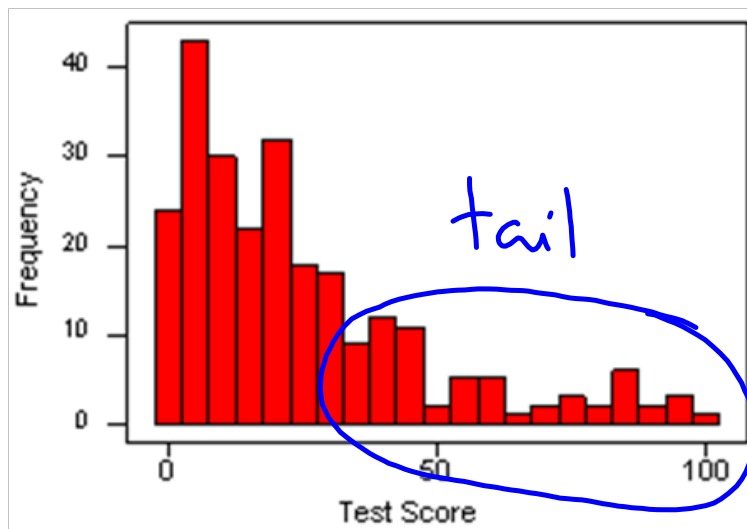
- For odd terms in data set,
median IS part of data.
- For even terms in data set,
median MAY OR MAY NOT be
part of the data set.



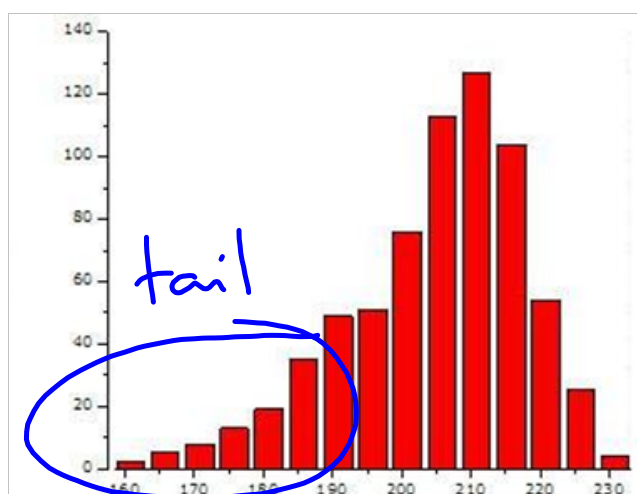
Unimodal
very symmetric



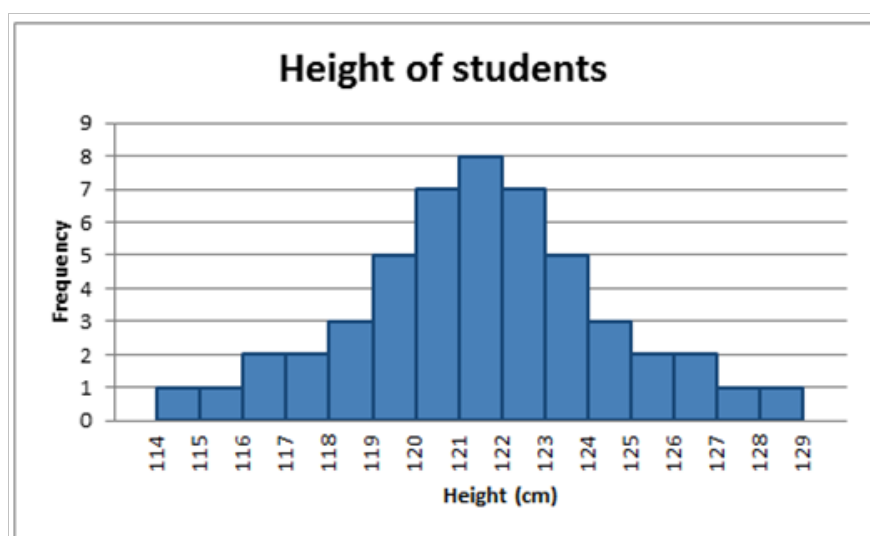
bimodal
very symmetric



- definitely
unimodal,
potentially bimodal
- Skewed right



- unimodal
- Skewed left



- unimodal
- symmetric